

REMARKS

Claims 1-33 are pending. Claims 5-11, 14-27 and 30-33 have been withdrawn from consideration. Claims 1-2 are amended herein. No substantive material is added. The amendments delete repetitive wording from the claims.

Applicants' Response to the Claim Rejections under 35 U.S.C. 102

Claims 1-4, 12, 13, 28 and 29 stand rejected under 35 U.S.C. 102(e) as being anticipated by Cheng et al. (US Pat. 6,638,866, hereinafter Cheng). Applicants respectfully traverse on the basis that Cheng does not teach each and every limitation of the claims.

First, in the present invention, the polishing slurry forming the first polishing material used in the main-polish and the polishing slurry contained in the second material used in the finish-polish are the same kind of polishing slurry. The present invention is characterized in that a main-polish is performed while a polishing slurry (first polishing material) containing abrasive grains and an additive of a surfactant is supplied onto a polishing pad (see FIG 21C of the present application), and a finish-polish is performed while the polishing slurry and water (or mixture of the polishing slurry and water) (a second polishing material) are being supplied onto the polishing pad after the main-polish.

On the other hand, in Cheng et al., the first slurry used in the first step and the second slurry used in the second step are clearly different from each other (see column 3, lines 36-55 of Cheng et al.). Cheng et al, discloses a chemical-mechanical polishing process comprising: a first polishing step of polishing an oxide layer 24 using a first slurry to thereby planarize the oxide layer 24 (see FIG 11), and a second polishing step using a second slurry (see FIG 13). The first

slurry has a selectivity of oxide with respect to nitride of greater than 3. On the other hand, the second slurry has a selectivity of oxide to nitride of greater than 10 and oxide to polysilicon of greater than 3. That is to say in Cheng et al., the first slurry used in the first polishing step and the second slurry used in the second polishing step are different from each other. Therefore, Cheng et al. does not teach the feature of claim 1 and 2 that the polishing slurry is consistent for the first polish and the finish polish.

Second, the polishing slurry used in the present invention is clearly different from the first slurry used in Chen et al. Specifically, claims 1 and 2 require a polishing slurry with abrasive grains and an additive of surfactant. A surface of a film-to-be-polished, polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant (main-polish), has a polishing rate which becomes extremely low when the surface of the film-to-be-polished has been planarized. Hence, the film-to-be-polished remains on the stopper film (see FIG 21C of the present application).

On the other hand, in Cheng et al., the film-to-be-polished (oxide layer 24) does not remain on the stopper film (silicon nitride layer 16) (see FIG 11 of Cheng et al.). Therefore, the first slurry used in Cheng et al. is clearly different from the polishing slurry used in the present invention, i.e., the polishing slurry containing the abrasive grains and the additive of the surfactant. Therefore, Cheng et al. also does not teach the feature of claims 1 and 2 requiring a polishing slurry which contains abrasive grains and an additive of a surfactant.

Third, in applicants' claims 1 and 2, the polishing slurry containing abrasive grains and the additive of the surfactant is used in the main-polish, and the polishing slurry and water are

used in the finish-polish. That is to say in the present invention, water is added to the polishing slurry in the finish-polish.

As a result thereof, the present invention solves a particular problem which occur in a case that the surface of the film-to-be-polished is polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant. That is to say in the case that the surface of the film-to-be-polished is polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant (main-polish), the polishing rate becomes extremely low when the surface of the film-to-be-polished has been planarized, and the film-to-be-polished remains on the stopper film (see FIG 21C of the present application). The film-to-be-polished on the stopper film is removed by the finish-polish. If the finish-polish is performed while only water is being supplied onto the polishing pad, the depth of dishings formed in the surfaces of the buried oxide films significantly vary. Hence, the variation of film thickness distributions of the buried oxide films becomes large.

The present invention solves the above problem which occurs when the film-to-be-polished is polished by using a polishing slurry containing abrasive grains and an additive of a surfactant. In the present invention, when the finish-polish is performed while the polishing slurry and water (or mixture of the polishing slurry and water) are being supplied onto the polishing pad, variation of depth of dishings is significantly reduced. Hence, the variation of film thickness distributions of the buried oxide films is decreased. Cheng et al, neither discloses nor suggests this feature of the present invention. Wherefore, applicants respectfully submit that Cheng et al. does not anticipate the present invention as the reference does not teach each and

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every limitation of applicants' claims 1 and 2. In light of the above, applicants respectfully request favorable reconsideration.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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